

DOCUMENT RESUME

ED 367 167

FL 021 889

AUTHOR Griffiths, Roger
TITLE Personality and Second-Language Learning: Theory, Research, and Practice.
PUB DATE 91
NOTE 35p.; In: Sadtono, Eugenius, Ed. Language Acquisition and the Second/Foreign Language Classroom. Anthology Series 28; see FL 021 883.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Information Analyses (070) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Class Activities; Classroom Communication; Classroom Techniques; Cognitive Style; *Cooperative Learning; *Cultural Traits; Foreign Countries; *Personality Traits; Research Methodology; Second Language Learning; *Second Languages; *Teaching Methods; *Testing

ABSTRACT

Personality has largely been ignored or written off as a variable in second language learning. However, it should be considered as an alternative research perspective for four reasons: (1) the writing off of personality variables in second language research has been unjustified, and results from giving credibility to studies based on ill-conceived assumptions; (2) a sufficiently detailed and elaborated theory of personality exists and could be built on profitably; (3) mainstream psychological research indicates variables and interactions that might be investigated in second language classrooms; and (4) such research is likely to be particularly relevant in cross-cultural studies because of distinctive national/racial personality profiles and mental ability profiles, particularly in Asia. Research in the field suggests that personality may be of potential importance in a number of areas of second language learning and teaching, including general instructional approaches, choice of specific methodology, task-based learning, paired and group work, use of praise and reinforcement, range of classroom stimuli used, and testing. Contains 86 references. (MSE)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

PERSONALITY AND SECOND-LANGUAGE
LEARNING: THEORY, RESEARCH AND
PRACTICE

Roger Griffiths

ED 367 167

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Wong Kim
Wong

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as
received from the person or organization
originating it.

Minor changes have been made to improve
reproduction quality.

- Points of view or opinions stated in this docu-
ment do not necessarily represent official
OEI position or policy.

FL021889

PERSONALITY AND SECOND-LANGUAGE LEARNING: THEORY, RESEARCH AND PRACTICE

Roger Griffiths

Abstract

Despite the importance of differences between language learners being frequently asserted in the second-language literature, investigations of the relationship between personality and learning have largely failed to produce significant findings. Consequently, reviewers have tended to write off personality variables from the L2 research agenda. The claim made in this paper is that this is unjustified, and that it results from giving unwarranted credibility to studies whose basic assumptions are ill-founded. Theoretically sound and research based hypotheses derived from the psychological literature (particularly the work of Eysenck) are, however, proposed as alternatives to global correlational ones. In reviewing specialist research in the field, areas in which personality is seen to be of potential importance in an L2 context include: methods; specific methodology; task-based learning; pairwork/groupwork; praise/reinforcement; range of stimuli; and testing. Cross-cultural research is demonstrated to be of particular interest in Asia where a number of distinctive personality and mental ability profiles have been observed. Preliminary findings from on-going research are reported. Research findings on the personality of teachers are also discussed. It is concluded that by working within established theory and using validated instruments, research on personality in an L2 context has demonstrable potential to inform practice.

Introduction

Despite resurgent interest in individual differences of second language learners (e.g. Skehan, 1989; de Jong & Stevenson, 1990) the study of personality as a variable in L2 learning is in a state of serious decline; it has in fact largely been written off the research agenda (as reflected in the publication of major journal articles).

However there are grounds for maintaining that the adoption of an alternative research perspective is long overdue. Four arguments are consequently proposed in this paper.

- 1) The writing off of personality variables in the context of L2 research is unjustified, and results from giving credibility to studies based on ill-conceived assumptions.
- 2) A sufficiently detailed and elaborated theory of personality exists and could be profitably built on.
- 3) Mainstream psychological research indicates variables and interactions which might fruitfully be investigated in second-language classrooms, within the theoretical framework referred to above.
- 4) Research carried out in this way is likely to be particularly relevant in cross-cultural studies due to the reported distinctiveness of national/racial personality profiles and mental ability profiles (especially in Asia).

Present Position Accorded to the Importance of Personality Variables in Second Language Research

Whereas the importance of affective variables in second-language learning is frequently acknowledged in the L2 literature (e.g. Brown, 1987, p. 111; Bley-Vroman, 1989, p. 49; but see Long, 1990, p. 275 for contrary view), variables specifically within the realm of personality are currently accorded little importance in research reviews. This is due to the fact that studies in which the role of personality variables have been investigated in relation to language learning have failed to produce consistently significant findings, e.g. Swain and Burnaby (1976) Naiman, Frolich, Stern, and Tadasco (1978), Genessee and Hamayan (1980).

The hypothesis which has received the most attention (actually almost all the attention) is that relating extraversion to language learning proficiency; the relationship is however very far from being definitively established, and reviewers have consequently arrived at generally pessimistic conclusions as to the importance of personality variables in SLA, and even questioned the validity of the constructs investigated. For example, in one of the most recent reviews, Skehan (1989),

maintains that L2 research should concern itself with improving definitions in the personality domain. He states:

"There are grounds for questioning the desirability of adopting, wholesale, a construct from a feeder discipline, psychology, rather than subjecting the construct to further analysis to relate it specifically to language learning." (p. 105)

In like vein, McDonough (1986, p. 139) reports that L2 researchers have not always been satisfied with the validity of personality scales developed for psychological studies. Ellis (1985, p. 120) similarly observes that L2 researchers have often preferred to develop their own batteries of personality traits "which intuitively strike them as important".

Summarising findings from L2 studies undertaken in this area, Ellis (1985) also notes that "In general the available research does not show a clearly defined effect of personality on SLA" (p. 121). He further states that the major difficulty of personality research in a second language context is that of identification and measurement:

"At the moment, a failure to find an expected relationship (e.g. between extroversion and proficiency) may be because the test used to measure the personality trait lacks validity." (p. 122)

However, it can be maintained that Ellis is no more right on this issue than is Skehan in doubting the wisdom of directly adopting constructs from psychology. It is, in fact, the central argument of this paper that only by working within the wider theoretical framework of personality theory as elaborated in the psychological literature, and only by making use of the tests which arise from that theory, will real progress be made in investigating personality within the context of second language learning.

Insofar, therefore, as L2 reviewers have got it wrong, it is clearly necessary to demonstrate how and why they did so. They do, after all, draw their conclusions from the results of extant studies. However, if the fundamental assumptions of studies, rather than their findings, are examined, an alternative explanation becomes possible. The study by Busch (1982), mentioned above and described by Brown (1987, p. 109) as "the most comprehensive study to date on extroversion", furnishes a representative example.

Busch begins her paper by stating:

"The assumption that there is a relationship between extraversion and proficiency in a foreign language is widely held by teachers, researchers, and students of second languages." (p. 109)

She then describes the evidence which she supposes supports this assumption (it does after all provide the *raison d'être* of her study).

The basis for including students in the above generalisation is given first. She notes that "31% of the students who were considered to be good language learners in the study by Naiman, Frohlich, and Stern (1975) stated that extraversion was helpful in acquiring oral skills". However, not only is the reference only (and merely) to oral skills but she might have observed (but did not) that 69% of the students did not state that extraversion was helpful.

Secondly, to justify the claim that the assumption is widely held by researchers, she cites comment by Rubin (1975). Rubin, however, merely states that good language learners have a strong desire to communicate (in Busch, 1982, p. 109). The opinions of two other researchers who are supposed (somewhat tangentially) to support the assumption, only appear in unpublished studies, and Busch actually quotes Brown (1973) as questioning the view that introverts are qualitatively less proficient than extraverts. In all, this is not convincing evidence of the assumption being widely held by researchers (even in L2).

No data are given to support the assumption attributed to teachers.

Although Busch clearly fails to justify her claim that there is widespread support for the assumption relating extraversion to language learning, she maintains that "psychologists have written volumes on the subject of introversion-extraversion" (p. 110). This is indeed true and she might have added that in reading "extraverts are more proficient in English" (Busch's hypothesis, 1982, p. 109). Indeed, the fatal flaw in this study, and in others which have looked at global language proficiency and personality, results from the postulating of naive relationships. It is quite simply the case that thus far the hypotheses investigated in L2 studies of personality are neither logically predicted from personality theory nor would they be anticipated from a reading of the relevant experimental literature. (In fact, insofar as general findings are available on learning and personality, that of Wankowski [1978] from an extensive study of British university students is that,

"Generally speaking, it seems that in both general and department populations, it is the neurotic and extravert students who tend to be less successful.." [p. 43-44]). Consequently, the fact that researchers have not found relationships cannot fairly be used (as it has been) to dismiss personality variables from the L2 research agenda; nor can highly validated psychometric instruments be held accountable for the failure.

However, if it is accepted that what has gone before has not gone very far and should arguably never have started out, then a number of things need to be accounted for. Firstly, there is researchers' evident interest in the area (as demonstrated by the studies undertaken). Secondly, there are findings from L1 research (e.g. Blease, 1986) that teachers regard personality variables as of considerable importance in learning. Thirdly, a survey of teachers ratings of the importance of psychological variables in language learning, shows that L2 teachers have at least as high a regard for personality factors as do content teachers.

(The survey was conducted with university and language school teachers in 3 countries; Japan, England and Oman. The aim of the survey, which was regarded as a very simple and initial probe into teachers' opinions, was to investigate whether these variables were seen as important by actual classroom practitioners. Responses to a question regarding the importance of 3 psychological variables [intelligence, personality and memory] in successful classroom language learning were recorded on a 5-point Likert scale anchored by very important (5) and not important (1). All three variables are observed to be highly regarded, with only minimal differences being observed between them. As the survey is recognised as an extremely simple one, further analysis of these findings is not justified, but the figures on "personality" do show, as hoped, that the area might have more potential than a reading of the extant research findings suggests).

It is, I suggest, possible to account for the perceived importance of personality variables, by looking, not at some understandably elusive global correlation between extraversion and language proficiency, but by exploring interactions and micro-areas where both theory and experimental evidence indicate the possibility of observing predicted relationships in language classrooms. However, before that can be done, as there are a number of alternative personality theories to choose from, justification for using a particular theory needs to be established and the theory itself needs to be briefly described.

Table 1
Psychological Variables Survey Findings

Country	N	Personality		Intelligence		Memory	
Japan	21	4.2	1.01	3.9	0.81	3.9	0.81
Oman	20	3.8	0.95	4.2	0.76	3.8	0.89
England	57	4.0	1.01	3.7	0.81	4.3	0.86
Total	98	4.0	0.99	3.9	0.80	4.1	0.86

(Max. = 5)

Eysenck's Theory of Personality

Psychology books on personality are usually arranged eponymously (e.g. Burger, 1986, has sections on Freud, Erikson, Eysenck, Kelly, etc.). Such compilations present tantalizing glimpses of research-based wealth amongst data-less poverty dressed in elaborate metaphors and expansive reflection. Consequently, if the need is for a comprehensive theory based on empirical studies which gives rise to testable hypotheses, preferably having a history of experimental verification, then the choice narrows considerably. If, in addition, there is a need for a reliable and verified personality test which is derived from the theory, the choice narrows even further. In fact, almost axiomatically, it leads to the choice being made from "trait" theories of personality.

The model described in this paper is that of H.J. Eysenck (e.g. Eysenck, 1967, 1970; H.J. Eysenck & S.B.G. Eysenck, 1975; H.J. Eysenck & M.W. Eysenck, 1985). Eysenck (1970) defines personality as:

"A more or less stable and enduring organization of a person's character, temperament, intellect, and physique, which determines his unique adjustment to the environment. Character denotes a person's more or less stable and enduring system of conative behaviour (will); temperament, his more or less stable and enduring system of affective behaviour (emotion); intellect, his more or less stable and enduring system of cognitive behaviour (intelligence); physique, his more or less stable and enduring system of bodily configuration and neuroendocrine endowment." (p. 2).

Eysenck's model is preferred over possible alternatives (e.g. Cattell, 1957) as it incorporates a well-validated taxonomy within an explicit causal theoretical framework. Also, not only has the theory itself generated a vast amount of (largely supportive) research, but the psychometric instrument used to measure the major factors (the Eysenck Personality questionnaire, [EPQ], Eysenck & Eysenck, 1975) has been standardized in some 35 different countries (several of these being in Asia).

Although Eysenck's model addresses both taxonomy and causality, clearly, taxonomy is primary: if personality could not be reliably measured on standardized instruments then causal theories would merely be verbal effusions on the elusive and ethereal. the notion of a hierarchic structure of behaviour (specific response - habitual response - trait - type) is central to Eysenck's model; it culminates in defining the type-concepts of introversion-extraversion (I-E), emotionality (otherwise described as neuroticism ([N]-stability)), and tough-mindedness (otherwise known as psychoticism [P]-normality/impulse control). These major dimensions, which are represented in almost all large-scale studies and nearly all theoretical formulations (e.g. Cattell, 1957; Digman, 1989), are represented by continua, the extremes of which can be described through idealized types:

"Extraverts are sociable, like parties, have many friends and need excitement; they are sensation-seekers and risk-takers, like practical jokes and are lively and active. Conversely introverts are quiet, prefer reading to meeting people, have few but close friends and usually avoid excitement. Subjects who score high on emotionality tend to be worriers, often anxious, moody and sometimes depressed; they over-react to stress, finding it difficult to calm down afterwards. Stable individuals on the other hand, are usually calm, even-tempered and unworried; they are slow to respond emotionally and recover their equipoise quickly after arousal. Tough-minded people are characterized by aggressive, hostile behaviour; they seem cold emotionally, lack empathy and are insensitive to the feelings of other people as well as their own; they are impulsive and egocentric but often also original and creative. They tend to be unconventional and appear to like odd, unusual people and things" (Eysenck & Chan, 1982, p. 154)

Test-retest reliabilities of the E and N scales in the very extensive British Standardization are reported to be .89 and .86 respectively.

The question of the validity of the EPQ (i.e. does the test actually measure what it is intended to measure), is extensively commented on by Eysenck and against which the test can be evaluated (obviously, the existence of such a criterion would make the test unnecessary); the answer lies in looking at the various ways in which validity can be approached. Content and face validity are clearly of little relevance as the appropriacy of items need to be assessed using statistical techniques, and a priori selection does not guarantee that items actually load on factors.

Eysenck and Eysenck use the term "consensual" (p. 77) validity to describe questionnaire validation through comparison with external ratings of informed observers. They report satisfactory evidence in respect of P, E and N, in this area. They also note that predictive validity of the EPQ is shown by correlations between ratings at one age and questionnaire results at another. Support for the validity of the major dimensions is also attained through criterion analysis. It is, in fact, a particular feature of Eysenck's conceptualisation that he insists that a criterion group anchor each dimension (hence Eysenck's retention of the factor names of neuroticism and psychoticism, instead of the less emotionally loaded labels of "emotionality" and "tough-mindedness"). According to Eysenck and Eysenck (1985) the question of construct validity (the extent to which a test may be considered to measure a particular theoretical construct), "should [ideally] involve a much more abstract type of theory, making possible far more complex and surprising predictions than would be possible on... [a] simple descriptive model" (p. 81). Such a theory is developed in the account of causality proposed by Eysenck.

Eysenck accounts for introverted and extraverted behaviour by reference to the concept of cortical arousal. He proposes that extraverts are characterized by under-arousal, introverts by high arousal. Extraverts are consequently driven to increase arousal through sensation-seeking etc., and introverts, who are chronically more cortically aroused, attempt to avoid strongly arousing stimuli. Eysenck and Eysenck (1985, p. 208) acknowledge that arousal theory provides a somewhat imprecise and oversimplified perspective, but an extremely large research literature derived from both physiological and psychological testing has produced results which have been essentially confirmatory; relationships between P,E and N and a host of behaviours such as accident proneness, anti-social behaviour, criminality, and smoking, are well documented (e.g. Eysenck, 1976). There is also abundant and convincing evidence for a genetic account of personality derived from twin studies (e.g. Floderus-Myrhed, Pederson, & Rasmuson, 1980; Rose, Koshenvuo,

Kaprio, Sarna, & Langinvainio, 1988), and evidence of physiological differences between introverts and extraverts, e.g. in temporal lobe blood flow distribution (Stenberg, Risberg, Warkentin, & Rosen, 1990).

While it will be recognised that the above account of Eysenck's theory is extremely condensed, it is hopefully sufficient to demonstrate its potential application in L2 research. Presuming this to be the case, it therefore becomes necessary to report general educational research findings and to relate these to areas of L2 research concern. This is done in the next section.

Identifying Meaningful Hypotheses

To the extent that the evidence showing that personality features interest with learning in meaningful ways supports teachers' beliefs (as expressed in the survey reported earlier) that personality is important in learning, it becomes the responsibility of L2 researcher to identify the domains in which such factors operate; this can only be done through consulting the psychological literature and relating both theory and findings to the L2 learning situation. However, as stated previously, as significant global correlations have only very infrequently been observed, this necessitates an analysis of specific interactions and micro-areas; those in which relevant research findings exist include the following:

- 1) Methods
discovery/receptive learning
- 2) Specific methodology
position of rules
- 3) Pairwork/groupwork
- 4) Tasks
- 5) Praise/reinforcement
- 6) Range and volume of stimuli
 - a) boredom
 - b) noise
- 7) Testing

Given the particular focus of this paper, and considering that studies relating to all of the above have been reviewed elsewhere (Griffiths, 1991), clearly not all of these areas need to be covered in detail. However, selected examples of relevant research will be described.

Methods

The conclusion that different methods produce the same results and tend to give support only to the null hypothesis is regarded by Eysenck (e.g. 1978, p. 145) as artifactual. He claims that introducing personality into the picture "often serves to demonstrate quite clearly that two methods apparently equal in effectiveness, differ sharply, one being much better for introverts, the other for extraverts" (1984, p. 185).

The truth of this claim is demonstrated by findings from a series of studies undertaken by Leith (e.g. 1969, also reported, 1974), one of which investigated differences in responses to "reception learning" (i.e. standard deductive teaching of principles by direct instruction) and "discovery learning" (i.e. the inductive method in which students are asked to find out principles and results for themselves). Leith investigated the hypothesis that "the greater readiness of extraverts to become bored by routines but likely to respond to stimulus variation, and of introverts to be disturbed by changes of set but able to maintain attentiveness to a highly prompted task, would result in a methods by personality interaction" (cited in Eysenck, 1978, p. 145).

A carefully prepared course (in genetics) was delivered to 211 students in randomly assembled treatment groups. One group learned from a program prepared in the form of direct instruction (reception learning), while the other learned from a discovery program. The discovery program was organised so that a complex whole was given first and then analysed, while the reception learning version built up the complex whole step by step. Both programs contained exactly the same content and the same examples were covered in each version. The difference was essentially one of induction or deduction. A post-test on the material taught and relevant transfer items was given one week after the completion of the course, and a retention test was given after a further four weeks.

Both sets of scores showed significant treatment x extraversion interactions ($p < .05$ & $p < .01$). Findings from the experiment are given below in both tabled and diagrammatic forms.

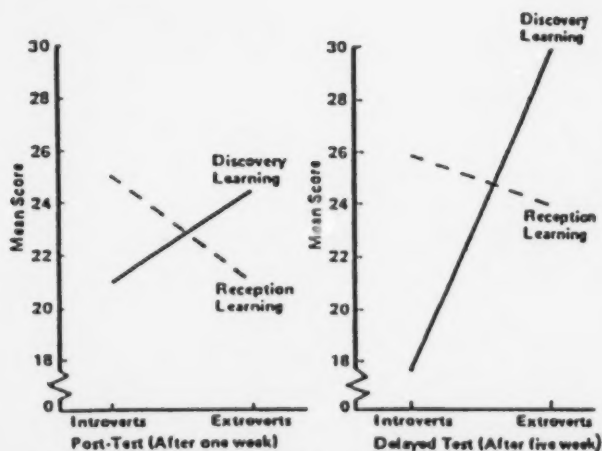
Table 2

MEAN POST TEST SCORES OF INTROVERTS AND EXTRAVERTS GIVEN
RECEPTION LEARNING AND GUIDED DISCOVERY PROGRAMMES

Personality Type	Teaching Strategy	
	Reception	Discovery
Extraverts	21.37	24.28
Introverts	24.67	21.03

MEAN RETENTION TEST SCORES OF INTROVERTS AND EXTRAVERTS
GIVEN RECEPTION LEARNING AND GUIDED DISCOVERY PROGRAMMES

Personality Type	Teaching Strategy	
	Reception	Discovery
Extraverts	24.44	29.63
Introverts	25.72	17.35



Effects of discovery and reception learning in introverts and extraverts (from Leith, 1974).

FIG. 1

FIG. 2

Leith concludes: "The notable point about [this] experiment is that, unless differences in personality had been included in the design, the methods of presenting learning tasks would have appeared to give the same results" (1969, p. 108).

Similar findings have resulted from other investigations, for example, Amaria and Leith (1969), and Leith and Wisdom (1970).

Insofar as it is possible to compare these findings (taken from content teaching) to language teaching (especially in regard to communicative language teaching which makes use of the principle of inductive learning, compared with deductive methods which emphasize the study of grammatical rules), the finding that discovery/inductive methods favour extraverts while reception/deduction favours introverts, must surely excite interest. However interactions of method and personality (of both students and teachers) appear not to have been investigated in this context.

Pairwork/Groupwork

The current emphasis on pair-work in L2 teaching and the claim that small-group work involving two-way tasks promotes learning through the negotiation of input (e.g. Long & Porter, 1985, p. 224) makes this an obvious area of investigation in terms of personality variables.

Findings from personality research, do in fact show that the dimensions of both I-E and N are relevant to performance in groups and pairs. In a study by Leith (1974), for example, pairs were formed on the basis of the personality variable of anxiety/neuroticism, pairs having either similar scores on this variable, or opposite (i.e. one anxious, the other stable). The main results are best shown in the form of a table.

Table 4

*Comparisons of achievements and behaviour of same and different anxiety level pairs**

(Heterogeneous ability pairs in brackets, homogeneous ability pairs without brackets)

Opposite anxiety pairs	Achieved	74% (32%)	more on the post-test than same anxiety pairs
Opposite anxiety pairs	Achieved	98% (113%)	more on the transfer-test Than same anxiety pairs
Opposite anxiety pairs	Spent	59% (36%)	more time in showing solidarity, raising other's status, giving help and rewarding than same anxiety pairs
Opposite anxiety pairs	Spent	121% (132%)	more time asking for orientation, information, confirmation, than same anxiety pairs
Opposite anxiety pairs	Spent	11% (20%)	less time in disagreeing passively rejecting, withholding help than same anxiety pairs

* From Leith, 1974.

Footnote

The distinction between methods in this area of research is seen in terms of the degree of guidance given to the learner. Ambiguities in the use of the term "method" are acknowledged, but, in general terms, discovery learning is considered to involve the least amount of teacher guidance, and direct instruction the most.

Remarkable improvements over the "'same' pairings are shown in 'unlike' pairings". Opposite anxiety pairs in the transfer test and, of 100% superiority over the same pairs in the transfer test and, of particular importance in the light of L2 input-negotiation findings (e.g. Long & Porter, 1985), they also spent 121% - 132% more time asking for orientation, information, and confirmation.

While it is obviously necessary to replicate such studies in an L2 context, it should certainly be the case that, as Eysenck claims, "These results open up fascinating vistas for both research and educational practice" (1978, p. 151). This must be particularly true in view of the importance ascribed to pair work in communicative language teaching.

Tasks

Evidence such as that described above does at least suggest the possibility that personality is important in, for example, determining individual task-type preference, determining response to tasks of varying levels of difficulty, even general disposition to a task-based approach. Specific hypotheses related to personality variables therefore appear to be worth exploring in relation to the use of tasks in language classrooms.

Praise and Reinforcement

The standard teach-training edict to praise success, is not necessarily supported by experimental evidence, (e.g. McCullers, Fabes, & Moran, 1987) clearly shows that giving rewards (toys to young children in this case) can have adverse effects on immediate performance. Other research also shows that responses are often related to personality dimensions. Nagpal and Gupta (1979), for example, found clear evidence that individuals differ in their susceptibility to reinforcement: "Extraverts condition more readily with the rewarding reinforcers while introverts condition more readily with the punishing reinforcers..." (p. 475)

The need to bring findings such as these to the attention of language teachers, and to conduct specific L2 classroom research in this area is clearly obvious.

Range and Volume of Stimuli

Boredom

The pervasive finding of experimental work on boredom (e.g. Wankowski, 1978, p. 47) is that it is very much in the eye of the beholder. This fact must be clearly recognised in the language classroom where teachers might overreact to the need for activity change voiced by highly vocal extraverts while introverts might be quietly contented.

Noise

Experimental evidence also suggests that the question of classroom noise levels might best be approached through looking at its effects on different personality types. Dornic and Ekehammer (1990), for example, in a study with 215 Swedish university students, found a highly significant negative correlation between noise sensitivity and extraversion, while Campbell and Hawley (1982) found higher extraversion scores for students who preferred a noisy library reading room to those who preferred a quieter room.

To the extent that classroom noise levels differ (and clearly they do both within and between classes), it appears that performance by introverts and extraverts is also likely to differ. The L2 researcher could therefore be involved in looking at the effect of noise level on the performance of students of differing personalities while involved in different activities.

Testing

There are numerous branches of research on personality differences which are of direct relevance to assessment and testing, and the field clearly needs to be approached from both major dimensions of personality, I-E and N.

Findings from research on memory are clearly relevant to testing, and indicate the importance of personality in this area. At the end of a chapter devoted to describing differences in learning and memory between introverts and extraverts, M.W. Eysenck (1977, p. 217), for example, concludes "The experimental evidence indicates that there are relatively consistent differences in extraverts show more

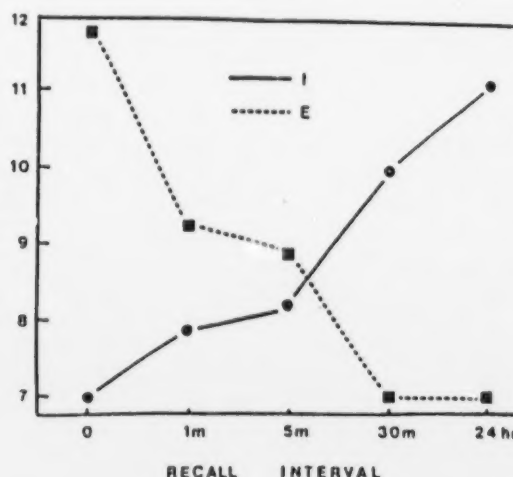
rapid learning than introverts on difficult tasks, such as those involving response competition [see Eysenck 1977, p. 184]; extraverts tend to recall better than introverts at short retention intervals; and extraverts retrieve information faster than introverts from episodic and semantic memory".

Findings of Howarth and H.J. Eysenck (1968) show this relationship in a particularly striking fashion.

RECALL

SCORE

Figure 3



scores of extraverts and introverts at the recall interval stated.

Maximum recall 14.

Each point is the mean score of 11 Ss.

From Howarth and Eysenck, 1968.

H.J. Eysenck (1978) has attempted to relate such findings to an educational context; he observes, "Clearly introverts remember better in the long run, while consolidation is still proceeding; if quizzed during this time, they may give the impression of not having paid attention. Extraverts may shine in the short period after learning, but will disappoint in the long run..." (p. 169)

The timing of testing is therefore seen to be of importance; a quiz given straight after a presentation being likely to favour extraverts while, at a later date, introverts are likely to show gain scores.

A number of other hypotheses related to general educational testing have been identified (Griffiths, 1991), and several of these are currently being related specifically to the second-language context, and subsequently investigated. Berry (forthcoming), for example, used the 86-item EPQ previously validated in Japan (Iwawaki, Eysenck & Eysenck, 1980) to identify groups of extreme introverts and extraverts in a sample of 96 junior college girls, and results of an English language achievement test/subtests were related to I-E scores. As predicted, no significant differences were obtained when overall test scores were analysed, but extraverts were shown to score significantly lower than introverts ($p = .03$) on a phrasal-level gap-fill dictation subtest. This result was also predicted from the personality literature which indicates extraverts to be more impulsive and less accurate on this type of test.

These are of course preliminary findings and little can be made of them until they are replicated, but the fact that they emerged from a study based on a test designed to assess achievement on a specific course (while in the specialist literature careful control of variables is often required before main effects are discerned, e.g. Revelle, Humphreys, Simon, and Gilliland, 1980) does add to their conviction.

In general, while it would be simplistic to expect to find any gross differences in language test scores between personality types it does however seem that particular types of test (and/or item types), modes of presentation, testing context, processing skills being assessed, etc., will be differentially responded to by extraverts-introverts/ highN-lowN learners.

Another area related to personality from which hypotheses are currently being derived is that of mental ability, where the visuo-spatial/verbal distinction is attracting contemporary attention.

Mental Ability Profiles

As noted earlier, Eysenck's definition of personality includes a cognitive dimension (intelligence) and here too, a number of Asian groups are observed to

have distinctive profiles, especially in the balance of verbal and non-verbal abilities. This is of particular interest as it is an area in which hypotheses are currently being formulated in the L2 literature.

It is suggested, for example, that case-study findings of exceptional language learning ability being observed in subjects with relatively weak visuo-spatial abilities (e.g. as reported in Novoa, Fein and Obler, 1988, p. 301) support the view of Schneiderman and Desmarais (1988) that mild to severe disabilities in visuo-spatial functions may be a frequent concomitant of L2 aptitude. They propose that talented language learners are "less left-lateralized for language than individuals who are less flexible and consequently less talented for second-language learning" (p. 116); as, in neurological terms, verbal abilities are, broadly, localised in the left hemisphere and visuo-spatial abilities in the right (Lynn, 1987, p. 814), then a trade-off of abilities appears possible, and the proposal has *prima facie* support. However, as the tests used in such studies (e.g. analogy tasks in matrix form) are generally regarded as good measures of general ability (e.g. Cronbach, 1990, p. 231-232), and as this has been shown to have a positive, if not very strong, relationship with successful L2 learning (e.g. Wesche, Edwards, & Wells, 1982) then the hypothesis must still be regarded as a very preliminary one. It is however supported by, for example, Smith (1964, cited in Lynn, 1987, p. 839-840) who, *inter alia*, found a negative correlation between spatial ability and examination performance in German by British school children. In general, however, the position is that while the usefulness of the mental ability verbal/visuo-spatial distinction has not been firmly established in an L2 context, the available evidence appears to make it worth further investigation.

It is therefore clear that hypotheses relevant to language learning can be derived from the psychological literature. Consequently, if personality can be assumed to be important in classroom language learning, the information on individual differences at all levels becomes worthy of consideration. Differences between races and nations (specifically referring to Asian nations) are therefore considered in the next section.

Asian Personality Profiles

In L2 research, as in science generally, we must look at regularities in nature as well as at the unique individual. We can of course do this at a number of levels all of which (in the case of personality and language learning) might be regarded as of

value. At the most general level, we are likely to derive some information from data at both the national and racial levels.

Similarities in personality structure between groups have been extensively observed (Barrett & Eysenck, 1984), and a good deal of standardization data is available for some 35 countries including Singapore, Japan, Hong Kong, and India. In order to facilitate cross-cultural comparisons, Barrett and Eysenck, have presented data on transformed scales (which mean that "the figures are directly comparable to one another" [p. 617]) from 25 countries. Those of regional interest are given in Table 5.

Table 5
Transformed Scale Means for Cross-Cultural Comparison

Males					
Country	Sample	E	N	P	L
Australia	336	18.83	14.88	8.41	7.39
China	500	14.49	13.85	7.62	19.49
Hong Kong	270	17.39	14.24	8.36	13.62
India	509	23.14	14.67	8.41	17.71
Japan	719	16.28	16.13	5.32	9.01
Singapore	493	18.46	11.61	4.74	15.77
U.K.	600	17.97	12.77	4.79	10.89

Females					
Country	Sample	E	N	P	L
Australia	318	19.79	16.08	5.50	7.76
China	500	13.01	15.14	5.95	21.33
Hong Kong	462	16.06	14.97	5.74	15.12
India	472	22.45	17.84	7.92	19.04
Japan	599	16.71	17.43	4.28	10.23
Singapore	501	16.38	14.43	3.97	16.87
U.K.	598	18.09	17.17	2.89	13.33

Each scale mean is presented as though derived from a <30>-item scale

(From Barrett & Eysenck, 1984, p. 618)

As is apparent, both similarities and differences between national populations emerges from the analysis. In line with the earlier discussion of personality variables which appear to be relevant to language teaching/learning and, as demonstrated by Berry (forthcoming), language testing bias, differences between scores on E and N are of particular interest. The very high E scores in China and Japan. Similarly, the high N scores of the Japanese (especially males) contrast with most of the other data.

The Japanese are in fact observed to have higher scores on introversion (low E) and neuroticism (emotionality), than citizens of most other countries (apart from China). Considerable support for this observation, originally based on a series of studies by Iwawaki et al. (e.g. 1980), has recently been obtained in a large scale study (n = 609 male and female college and university students) using a reduced scale 86-item EPQ, by Griffiths and Berry (in preparation) and a smaller study (n = 181 male university students) by Griffiths, and Sheen (in preparation, a).

Another confirmatory finding of on-going research (Griffiths & Sheen, in preparation, a) is that of the high visuo-spatial ability of the Japanese (Lynn, 1987). Having rejected the GEFT (Witkin, Oltman, Raskin & Karp, 1971) as a measure of field independence/independence (Griffiths & Sheen, in preparation, b), but viewing it as a measure of visuo-spatial ability and an excellent measure of fluid intelligence (following Cronbach, 1984, p. 265), it was administered to 175 male students enrolled at a middle ranking Japanese private university (and therefore probably of no more than high average IQ) and 63 female college students. Scores considerably higher than USA norms and also even higher than those previously reported for 112 Japanese subjects in a study of 816 foreign students in the English Language Institute at Brigham Young University-Hawaii (e.g. Hansen-Strain & Strain..., p. 260) were observed. Table 6 shows relevant scores from both studies (Note 1: only scores obtained with n > 40 are reported. Note 2: USA norms for college students; males=12.0, s.d. 4.1; females=10.8, s.d. 4.2; Witkin et al., 1971, p. 28).

Table 6
GEFT Scores in Two Asian Studies

Group	N	Mean	s.d.
Samoa	83	9.9	4.4
Tonga	139	8.4	5.5
Micronesia	63	6.8	4.0
Philippines	42	6.5	4.6
Hong Kong	194	13.7	4.3
Chinese	55	13.3	3.6
Korea	103	10.4	4.7
Japan	112	14.1	4.5
Japan (Males)		15.8	
Japan (Females)		13.3	

(Hansen-Strain & Strain, 19... p. 260)

Japan (Males)	175	16.0	3.0
Japan (Females)	63	15.2	3.0

(max. score = 18)

(Griffiths & Sheen, in preparation, a)

Insofar as these findings can be thought of as representative comparable samples of the nations in question (and Hansen-Strain p.c., but Werner, [1979, cited in Royce, 1988, p. 159], indicates higher Filipino spatial ability than shown here), results of testing on the GEFT are clearly seen to vary considerably between nations, thus confirming Jenson and Reynolds' (1982; 423) observation that visuo-spatial ability (rather than verbal) is the ability which most differentiates races. This also differs, as indicated by many studies (including that of Hansen-Strain & Strain), between the sexes, with males typically scoring higher than females (this being a well-documented general finding, e.g. see Bernard, Boyle, & Jackling, 1990).

Clearly, the above data would be shown to be of particular relevance to SLA research if, as discussed earlier, the proposed relationship between low spatial ability and superior language learning ability were to be conclusively demonstrated within the compensatory neuropsychological model proposed by Schneiderman &

Desmarais (1988). Indications of such sizeable differences between nations/races in visuo-spatial ability would then become of enormous L2 research interest, particularly in Asia. It would, for example, be a finding of some importance if the discrepancy between the Japanese and the Filipinos as indicated in the above tables, was actually observed to be related to aspects of language learning, thus strengthening the assumption of a neuropsychological substrate for language learning ability. Although at this time the evidence is not yet in, the availability of such rich cross-cultural data makes its collection all the more interesting and all the more essential, if we are to understand the influence of psychological variables in language learning.

A further example of the relevance of research-based information of this type to language learning becomes apparent when it is related to current teaching practices. In Japan, for example, although observational classroom data are difficult to obtain the overwhelming consensus from comparative education studies (e.g. Duke, 1986) and questionnaire investigations (e.g. see Aiga, 1990), is of extremely traditional language teaching methods being employed in high schools. As Aiga (1990, p. 140) observes "most of the average lesson period is spent on mechanical drills and on the teacher's explanations, rather than on communicative activities." Explanations for the continuance of grammar-translation and pronunciation drills as primary activities in Japanese schools usually centre on teachers teaching as they were taught, or the demands of university entrance exams. There is, however, also intuitive support for the view that the Japanese may be sufficiently different from Westerners so as to justify their adaptations of methods. Ito (1978, p. 214), for example, states (using the Germans merely as an example of Westerners), "The method suited to the German is not necessarily suited to the Japanese." Data to support such opinions are not cited, but if personality and mental ability findings on the Japanese are considered (and related to the demands of the schools to teach English to 94% of the school age population over the age of 16) then justification for employing tradition methodology can be derived.

Firstly, highly anxious introverted individuals are likely to be more comfortable with methods which do not force them into public performance, which may expose poor fluency and error production. And, as Lazarus, Tomita, Option Jr., & Kodama (1966) found when their experiment on cross-cultural anxiety was ruined by Japanese subjects being as anxious while watching a film on rice farming as they were when watching one on genital mutilation, the Japanese are unusually sensitive even to totally disinterested observation.

Secondly, evidence (e.g. Jenson, 1973, p. 6; 1974) indicating that low ability subjects more approximate high ability subjects on "associative learning ability" (rote learning) than they do on "conceptual learning ability" (abstract reasoning), suggests the former as more suitable for groups containing high proportions of low ability students who have high expectations. Experimental findings (e.g. Tinkham, 1990) also confirm that Japanese high school students are not only very good at rote learning, but they also have a more positive view of it than do American students. Japanese educationalists (e.g. Sato, 1978, p. 306) also appear to be more favourably disposed to rote learning than do most Westerners.

Personality variables may therefore partly account for present language teaching methodology in Japanese schools, and, in addition, help to explain why immediate post war attempts to introduce progressive teaching methods, with children taking an active role in the learning process, were seen as "unnatural" (Duke, p. 162) and were, consequently, short-lived. Efforts to introduce more communicative language teaching into Japan may consequently need to be redoubled if they are to surmount the hurdle presented by the Japanese personality and mental ability profile; only demonstrations of unquestionably superiority of communicative methods are likely to bring this about.

Solely in terms of personality, Singaporeans and subjects from Hong Kong appear to be much more similar to, for example, the British, than do the Japanese. Lynn (1977) does, however, indicate that Chinese Singaporeans exhibit high visuo-spatial ability comparable to that of the Japanese. Also, in terms of learning strategies, the findings of an L2 study aimed at improving vocabulary through imagery and grouping strategies (O'Malley, Chamot, Stewner-Manzanares, Russo, & Kupper, 1985) is perhaps instructive. Asian students' performance is summarised as follows: "Asian students [mainly from Southeast Asia] in the control group applied rote memorization strategies to the vocabulary task so successfully they outperformed the experimental groups who had been trained in what we perceived as more sophisticated strategies" (reported in O'Malley & Chamot, 1990, p. 165). With reference to rote memorization ability, Southeast Asians appear, therefore, to be not unlike the Japanese, and it raises the possibility that here too resistance to more communicative methods might persevere for this reason.

Clearly, at present the only substantive findings in the area are descriptive ones, the relationship of these variables to L2 learning requiring a good deal of further investigation. However, if as proposed earlier, personality variables are

demonstrated to play a significant role in explaining individual differences in aspects of language learning, then it would be illogical not to expect differences between nationalities (especially on the scale of the I-E variation between China and India, or on N between males of Japan and the U.K.), to be reflected in aspects of language classroom performance. Equally, if further support is forthcoming for the visuo-spatial-deficit/language-learning-ability hypothesis, the difference, for example, between performance on visuo-spatial measures by the Japanese and Filipinos, might be seen to have explanatory value in a cross-cultural model of L2 Learning.

As is obvious, the many interesting relationships suggested by these data cannot now be considered as more than speculative; the area has been too long neglected for more to be possible at this stage. Yet it is also clear that cross-cultural studies of personality conducted within Eysenckian theory readily yield hypotheses relevant to SLA. In fact, insofar as variables such as I-E and verbal/visuo-spatial ability are demonstrated to be relevant to L2 learning, findings such as those described above suggest that a model of L2 learning which does not take cross-cultural differences into account will be incomplete.

The Personality of Teachers

It would perhaps not be appropriate to conclude a paper on personality and classroom learning without at least mentioning a little of the research on the personality of the teacher.

Early research (e.g. Evans & Wrenn, 1942) which suggested that extraverts were more successful teachers than introverts, was later questioned in studies on "educational seduction" or the "Dr Fox effect" (Naftulin, Ware, & Donnelly, 1973). In a meta-analysis of the literature on educational seduction, Abrami, Leventhal, and Raymond (1982) concluded that personal style, being entertaining and charismatic, etc., can merely seduce students into believing they have learned. They found "that instructor expressiveness had a substantial impact on student ratings but a small impact on student achievement. In contrast, lecture content had substantial impact on student achievement but a small impact on student ratings" (p. 446).

The current position (Murray, Rushton, & Paunonen, 1990), however, is that teacher personality traits are translated into specific classroom behaviours which are

validly reflected in student ratings. Although extraversion is indicated as a distinguishing characteristic of "good" teachers, another major finding from this research is that the specific personality traits which contribute to effective teaching, vary between course types, e.g. "neurotic extraverts" excel in large, lower-level, lecture classes, while neuroticism appears less desirable in graduate seminars.

It is notable that all of the above research has, however, been carried out with content teachers. Relating the personality of L2 teachers to language teaching variables is a little-tapped area of considerable research potential.

Conclusion

Evidence of the sensitivity of teachers to individual differences of students comes from the literature on teacher expectations and self-fulfilling prophecies. Here the conclusion (e.g. see Jussim, 1989) is that teachers' expectations predicted student performance "primarily because they were accurate" (p. 477). Results of a study of student-teacher interactions by Hummel-Rossi and Merrifield (1977), for example, also show that teachers are reasonably aware of the individual needs of learners and, where possible, respond to them. The general conclusion, however, is that personality dispositions are perceived less accurately than ability dimensions (e.g. see Jussim, 1989, p. 478).

Eysenck sees this problem in terms of the data available to teachers. Commenting on the relevance of personality variables to classroom practice, he points out that these are "interactions to which the best teachers have of course always been sensitive, but with which they have hitherto been able to deal only on an intuitive rather than a rational, experimentally supported basis" (1978, p. 153). Also, effects of intervention are not always obvious or in accord with common wisdom, e.g. individualized instruction (in comparison with the conventional lecture/examination method) intended to alleviate test anxiety has been observed to cause more anxiety than the original malady (Watson, 1988).

It is therefore necessary for the L2 researcher to explore such interactions and transmit whatever knowledge is available in the area of classroom practitioners. Both the theory and the available data make it appear desirable to conduct rigorous theory-based research on personality in an L2 context at a number of levels. The well-documented accounts of differences between races and nationalities suggests hypothesis formulation at this level is likely to be instructive, and conducting actual

case studies also has obvious relevance when individual differences are under discussion. Experimentation at levels between these extremes has also been described and positive findings are now forthcoming.

An additional, and extremely positive aspect of on-going research is that, in testing hypotheses from a developed theoretical model, findings from this research cannot only be used to inform the field of applied linguistics/EFL, but they can also feed back into personality theory. Clearly, a symbiotic relationship was always desirable, and, given the present reassessment of personality variables in the context of L2 teaching/learning, it is becoming a reality.

This development represents a radical change in the status of such variables in an L2 context, as until recently, there were few indications that the study of personality within the discipline of SLA merited serious consideration. However, now that the area is being seriously considered, findings of consequence are beginning to emerge. The study by Berry (forthcoming), which appears to be the first L2 investigation in the domain of personality to test hypotheses based on established personality theory and the first to use an appropriately validated personality scale derived from cross-cultural analysis, can be regarded as something of a breakthrough in the area. It certainly suggests exciting research-based prospects for the future, and the possibility of L2 personality research being truly "applied". Theory and research in the area are, in fact, now poised to make a contribution to practice.

It is, in conclusion, of course acknowledged that personality is only one of the many variables that play a part in explaining individual differences in SLA; it is, however, hoped that on-going research findings and restatements of theoretical positions will convince those who have been prematurely dismissive of the area, that it is worthy of sustained scientific attention. Unless "we assume that teaching can proceed just as well in the absence of any knowledge about the learning process, or individual differences relating to it..." (Eysenck, 1978, p. 169), then clearly it is.

The Author

Roger Griffiths has a Ph.D. in applied linguistics from Southampton University and is Associate Professor of English at Nagoya University of Commerce and Business Administration, Japan. He is also a Chartered Psychologist and Associate Fellow of The British Psychological Society.

REFERENCES

- ARRAMI, P.C., Leventhan, L., & Raymond, P.P. (1982). *Educational Seduction. Review of Educational Research*, 52, 446-464.
- AIGA, Y. (1990). *Is Japanese English Education Changing?* *Cross Currents*, 2, 139-145.
- AMARIA, R.P. & Leith, G.O.M. (1969). *Individual Versus Co-operative Learning. Educational Research*, 11, 193-199.
- BARRETT, P. & Eysenck, S.G.B. (1984). *The Assessment of Personality Factors across 25 countries. Personality and Individual Differences*, 5, 615-632.
- BERNARD, M.E., Boyle, G.J., & Jackling, B.F. (1990). *Sex-role Identity and Mental Ability. Personality and Individual Differences*, 11, 213-217.
- BERRY, V. (forthcoming). *Personality Characteristics as a Source of Language Test Bias. Paper presented at the Language Testing in Europe Seminar, August 1991, University of Jyväskylä, Finland.*
- BLEASE, D. (1986). *Teachers' Personal Constructs and Their Pupils' Self-images. Educational Studies*, 12, 255-264.
- BLEY-ROMAN, R. (1989). *What is the Logical Problem of Foreign Language Learning?* In S.M. Gass & J. Schachter (eds.), *Linguistic Perspectives on Second Language Acquisition* (pp. 41-68). Cambridge: CUP.
- BROWN, H.D. (1973). *Affective Variables in Second Language Acquisition. Language Learning*, 23, 231-244.
- BROWN, H.D. (1987). *Principles of Language Learning and Teaching. (2nd Edition). Englewood Cliffs, NJ: Prentice Hall Regents.*
- BURGER, J.M. (1986). *Personality. Belmont, CA: Wadsworth.*
- BUSCH, D. (1982). *Introversion-extraversion and the EFL Proficiency of Japanese Students. Language Learning*, 32, 109-132.

- CAMPBELL, J.B. & Hawley, C.W. (1982). *Study Habits and Eysenck's Theory of Extraversion-introversion*. *Journal of Research in Personality*, 16, 139-146.
- CATTELL, R.B. (1957). *Personality and Motivational Structure and Measurement*. *Yonkers: New World*.
- CRONBACH, L.J. (1984). *Essentials of Psychological Testing*. Fourth Edition. New York: Harper & Row.
- CRONBACH, L.J. (1990). *Essentials of Psychological Testing*. Fifth Edition. New York: Harper & Row.
- de JONG, J.H.A.L. & Stevenson, D.K. (eds.), (1990). *Individualizing the Assessment of Language Abilities*. Clevedon: Multilingual Matters.
- DIGMAN, J.M. (1989). *Five Robust Trait Dimensions: Development, Stability and Utility*. *Journal of Personality*, 57, 195-214.
- DORNIC, S. & Ekehammer, B. (1990). *Extraversion, Neuroticism and Noise Sensitivity. Personality and Individual Differences*, 9, 989-992.
- DUKE, B. (1986). *The Japanese School: Lessons for Industrial America*. New York: Praeger.
- ELLIS, R. (1985). *Understanding Second Language Acquisition*. Oxford: OUP.
- EYSENCK, H.J. (1967). *The Biological Basis of Personality*. Springfield, IL: Charles C. Thomas.
- EYSENCK, H.J. (1970). *The Structure of Human Personality*. (3rd Edition). London: Methuen.
- EYSENCK, H.J. (1976). *The Measurement of Personality*. Lancaster: Medical and Technical Publishers.
- EYSENCK, H.J. (1978). *The Development of Personality and its Relation to Learning*. In S. Murray-Smith (ed.), *Melbourne Studies in Education* (pp. 134-181). Melbourne: Melbourne University Press.
- EYSENCK, H.J. (1984). *The Biology of Individual Differences*. In V. Sarris & A. Parducci (eds.), *Perspectives in Psychological Experimentation: Towards the Year 2000* (pp. 179-195). Hillsdale, NJ: Erlbaum.

- EYSENCK, H.J., & Eysenck M.W. (1985). *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum.
- EYSENCK, H.J., & Eysenck, S.B.G. (1975). *Manual of the Eysenck Personality Questionnaire*. London: Hodder and Stoughton.
- EYSENCK, M.W. (1974). *Extraversion, Arousal, and Retrieval from Semantic Memory*. *Journal of Personality*, 42, 319-331.
- EYSENCK, M.W. (1977). *Human Memory: Theory, Research and Individual Differences*. Oxford: Pergamon.
- EYSENCK, M.W. (1970). *Anxiety, Learning, and Memory*. *Journal of Research in Personality*, 13, 363-385.
- EYSENCK, M.W. (1984). *A Handbook of Cognitive Psychology*. London: Erlbaum.
- EYSENCK, S.B.G. & Chan, J. (1982). *A Comparative Study of Personality in Adults and Children: Hong Kong vs England*. *Personality and Individual Differences*, 3, 153-160.
- EVANS, C. & Wrenn, C.G. (1942). *Introversion-extraversion as a Factor in Teacher Training*. *Educational and Psychological Measurement*, 2, 47-58.
- FLODERUS-MYRHED, B., Pederson, N., & Rasmuson, I. (1980). *Assessment of Heritability for Personality, based on short-form of the Eysenck Personality Inventory: A Study of 12,898 twins*. *Behavioural Genetics*, 10, 153-162.
- GENESSEE, F. & Hamayan, E. (1980). *Individual Differences in Second Language Learning*. *Applied Psycholinguistics*, 1, 95-110.
- GRIFFITHS, R.T. (1991). *Language Learning and the Japanese Personality: Hypotheses from the Psychological Literature*. *IUJ Conference Proceedings on Second Language Research in Japan*. 20 October, Tokyo, Niigata: IUJ.
- GRIFFITHS, R.T. & Berry, V. (in preparation). *The Japanese Personality: EPQ data on a student sample*.
- GRIFFITHS, R.T. & Sheen, R. (in preparation, a). *Japanese Visuo-spatial Abilities and Personality: Further evidence*.

- GRIFFITHS, R.T. & Sheen, R. (in preparation, b). *Embedded Figures in the Landscape: A Reappraisal of 12 Research on Field Dependence/Independence*.
- HANSEN-STRAIN, L. & Strain, J. (....) *Learning Styles of the Japanese Second Language Learner: Field Sensitivity, Cognitive Tempo, Test Anxiety, Modality Preference* 257-275.
- HOWARTH, E., & Eysenck, H.J. (1968). *Extraversion, Arousal, and Paired-associate Recall*. *Journal of Experimental Research in Personality*, 3, 114-116.
- HUMMEL-ROSSI, B., & Merrifield, P. (1977). *Student Personality Factors related to Teacher Reports of their Interactions with Students*. *Journal of Educational Psychology*, 69, 375-380.
- ITO, K. (1978). *Traditional Methods and New Methods: A study on the Methods suited for the Japanese*. In I. K. Ito, M. Matsuyama, Y. Igarashi, & K. Suzuki (eds.), *The Teaching of English in Japan* (pp. 204-219). Tokyo: Eichosha.
- IWAWAKI, S., Eysenck, S.B.G., & Eysenck, H.J. (1980). *Japanese and English Personality Structure: A Cross-cultural Study*. *Psychologia*, 23, 195-205.
- JENSON, A.R. (1973). *Educability and Group Differences*. London: Methuen.
- JENSON, A.R. (1974). *Interaction of Level I and Level II Abilities with Race and Socioeconomic Status*. *Journal of Educational Psychology*, 66, 99-111.
- JENSON, A.R. & Reynolds, C.R. (1982). *Race, Social Class and Ability Patterns on the WISC-R*. *Personality and Individual Differences*, 3, 423-438.
- JUSSIM, L. (1989). *Teacher Expectations: Self-fulfilling Prophecies, Perceptual Biases, and Accuracy*. *Journal of Personality and Social Psychology*, 57, 469-480.
- LAZARUS, R.S., Tomita, M., Opton Jr., E., & Kodama, M. (1966). *A Cross-cultural Study of Stress-reaction patterns in Japan*. *Journal of Personality and Social Psychology*, 4, 622-633.
- LEITH, G.O. (1969). *Learning and Personality*. In W.R. Dunn & C. Holroyd (eds.), *Aspects of Educational Technology*, Vol. 2 (pp. 101-110). London: Methuen.
- LEITH, G.O. (1972). *The Relationship between Intelligence, Personality and Creativity under Two Conditions of Stress*. *British Journal of Educational Psychology*, 42, 240-247.

- LEITH, G.O. (1973). *The Effects of Extraversion and Methods of Programmed Instruction on Achievement*. *Educational Research*, 5, 150-153.
- LEITH, G.O. (1974). *Individual Differences in Learning: Interactions of Personality and Teaching Methods*. *Personality and Academic Progress Proceedings*, 14-25. London: Association of Educational Psychologists.
- LEITH, G.O. & Trown, E.A. (1970). *The Influence of Personality and Task Conditions on Learning and Transfer*. *Programmed Learning*, 7, 181-188.
- LEITH, G.O., & Wisdom, B. (1970). *An Investigation of the Effects of Error Making and Personality on Learning*. *Programmed Learning*, 7, 120-126.
- LONG, M.H. (1990). *Maturational Constraints on Language Development*. *Studies in Second Language Acquisition*, 12, 251-285.
- LONG, M.H. & Porter, P.A. (1985). *Group Work, Interlanguage Talk, and Second Language Acquisition*. *TESOL Quarterly*, 19, 207-228.
- LYNN, R. (1977). *The Intelligence of the Chinese and Malays in Singapore*. *Mankind Quarterly*, 18, 125-128.
- LYNN, R. (1987). *The Intelligence of the Mongoloids: A Psychometric, Evolutionary and Neurological Theory*. *Personality and Individual Differences*, 8, 813-844.
- McCULLERS, J.C., Fabes, R.A., & Moran III, J.D. (1987). *Does Intrinsic Motivation Theory Explain the Adverse effect of Rewards on Immediate Task Performance?* *Journal of Personality and Social Psychology*, 52, 1027-1033.
- MCDONOUGH, S.H. (1986). *Psychology in Foreign Language Teaching*. (2nd Edition). London: Unwin Hyman.
- MURRAY, H.G., Rushton, J.P., & Paunonen, S.V. (1990). *Teacher Personality Traits and Student Instructional Ratings in Six Types of University Course*. *Journal of Educational Psychology*, 82, 250-261.
- NAFTULIN, D.H., Ware, J.E. Jr., & Donnelly, F.A. (1973). *The Doctor Fox Lecture: A Paradigm of Educational Seduction*. *Journal of Medical Education*, 48, 630-635.

- NAGPAL, M., & Gupta, B.S. (1970). *Personality, Reinforcement and Verbal Operant Conditioning*. *British Journal of Psychology*, 70, 471-476.
- NAIMAN, N., Frolich, M., & Stern, H.H. (1975). *The Good Language Learner*. Toronto: The Ontario Institute for Studies in Education.
- NAIMAN, N., Frolich, M., Stern, H.H., & Todesco, A. (1978). *The Good Language Learner*. Research in Education Series No. 7. Toronto: The Ontario Institute for Studies in Education.
- NOVOA, L., Obler, L., & Fein, D.A. (1988). *A Neuropsychological Approach to Talented Second Language Acquisition - A Case Study*. In L.K. Obler & D.A. Fein (eds.), *The Exceptional Brain: Neuropsychology of Talent and Special Abilities*, (pp. 294-302). Cambridge: CUP.
- O'MALLEY, J.M., Chamot, A.U., Stewner-Manzanares, G., Russo, R., & Kupper, I. (1985). *Learner Strategy Applications with Students of English as a Second Language*. *TESOL Quarterly*, 19, 285-296.
- O'MALLEY, J.M., & Chamot, A.U. (1990). *Learner Strategies in Second Language Acquisition*. Cambridge: CUP.
- REVELLE, W., Humphreys, M.S., Simon, L., & Gilliland, K. (1980). *The Interactive Effects of Personality, Time of Day and Caffeine: A Test of the Arousal Model*. *Journal of Experimental Psychology: General*, 109, 1-31.
- ROSE, R.J., Koshenvuo, M., Kaprio, J., Sarna, S., & Langinvainio, H. (1980). *Shared Genes, Shared Experiences, and Similarity of Personality: Data from 14,288 Adult Finnish Co-twins*. *Journal of Personality and Social Psychology*, 34, 161-171.
- ROYCE, J.R. (1988). *The Factor Model as a Theoretical Basis for Individual Differences*. In S.H. Irvine & J.W. Berry (Eds.), *Human Abilities in Cultural Context*, (pp. 147-165). Cambridge: CUP.
- RUBIN, J. (1975). *What the "Good Language Learner" can teach us*. *TESOL Quarterly*, 9, 41-51.
- SATO, H. (1978). *Production: On Classroom Activities*. In I. Koike, M. Matsuyama, Y. Igarashi, & K. Suzuki (Eds.), *The Teaching of English in Japan*. (pp. 298-308). Tokyo: Eichosha.

- SCHNEIDERMAN, E. & Desmarais, C. (1988). A Neuropsychological Substrate for Talent in Second Language Acquisition. In L.K. Obler & D. Fein (eds.), *The Exceptional Brain: Neuropsychology of Talent and Special Abilities*. (pp. 103-126). New York: Guilford.
- SKELHAN, P. (1989). *Individual Differences in Second-language Learning*. London: Edward Arnold.
- SMITH, I. MacFARLANE (1964). *Special Ability*. London: University of London Press.
- STERNBERG, G., Risberg, J., Warkentin, S., & Rosen, I. (1990). Regional Patterns of Cortical Blood Flow Distinguish Extraverts from Introverts. *Personality and Individual Differences*, 7, 663-673.
- SWAIN, M. & Burnaby, B. (1970). *Personality Characteristics and Second Language Learning in Young Children: A Pilot Study*. Working Papers in Bilingualism, 11, 76-90.
- TINKHAM, T. (1990). Rote Learning, Attitudes, and Abilities: A Comparison of Japanese and American Students. *TESOL Quarterly*, 24, 695-698.
- WANKOWSKI, J. (1978). *Personality Dimensions of Students and Some Educational Implications of Eysenck's Theory of Extraversion and Neuroticism*. University of Birmingham Educational Survey Research Report. Birmingham: University of Birmingham.
- WATSON, J.M. (1988). Achievement Anxiety Test: Dimensionality and Utility. *Journal of Educational Psychology*, 80, 585-591.
- WERNER, E.E. (1979). Subcultural Differences in Ability, Achievement, and Personality Factors among Oriental and Polynesian Children on the Island of Kauai. In L. Eckensberger, W. Lonner, & Y.H. Poortinga (eds.), *Cross-cultural Contributions to Psychology*. Lisse: Swets & Zeitlinger.
- WESCHE, M., Edwards, H., & Wells, W. (1982). *Foreign Language Aptitude and Intelligence*. *Applied Psycholinguistics*, 3, 127-140.
- WITKIN, H.A., Oltman, P.K., Raskin, E., & Karp, S.A. (1971). *A Manual for the Embedded Figures Test*. Palo Alto, Ca.: Consulting Psychologists Press.